AMENDMENTS TO THE CLAIMS

Claims 1-10 have been canceled.

11. (Previously Presented) A re-transmission control method for a transmitting device that transmits a codeword generated based on a first parity-check matrix to a receiving device, and re-transmits a k-th additional parity generated based on a k-th parity-check matrix to the receiving device when receiving a negative acknowledgement for the codeword or a (k-1)-th additional parity, where k is a positive integer, the re-transmission control method comprising:

transforming a k-th parity-check matrix into an irreducible standard form so that the k-th parity-check matrix includes a k-th check symbol generator matrix;

generating a (k+1)-th parity-check matrix including the k-th parity-check matrix transformed in the irreducible standard form;

transforming the (k+1)-th parity-check matrix into the irreducible standard form so that the (k+1)-th parity-check matrix includes the k-th check symbol generator matrix and a (k+1)-th check symbol generator matrix;

generating a generator matrix including the k-th check symbol generator matrix and the (k+1)-th check symbol generator matrix;

generating the k-th additional parity based on the generator matrix; and

transmitting the k-th additional parity to the receiving device.

12. (Previously Presented) The re-transmission control method according to claim 11, wherein

the (k+1)-th parity-check matrix is linearly independent,

number of columns of the k-th parity-check matrix is smaller than number of columns of the (k+1)-th parity-check matrix,

number of rows of the k-th parity-check matrix is smaller than number of rows of the (k+1)-th parity-check matrix, and

a sum of differences between the Shannon limit and N SNRs each of which corresponding to each of N parity-check matrices is minimum, where N is a positive integer.

13. (Previously Presented) The re-transmission control method according to claim 12, wherein number of rows and columns to be added to the k-th parity-check matrix to generate the (k+1)-th parity-check matrix are determined according to system requirement conditions.

14. (Previously Presented) The re-transmission control method according to claim 13, wherein a zero matrix of which number of columns is equal to determined number of columns is added to the k-th parity-check matrix to generate the (k+1)-th parity-check matrix.

15. (Previously Presented) The re-transmission control method according to claim 11, wherein

the negative acknowledgement from the receiving device includes number of errors corrected by the receiving device, and

the transmission device determines a coding rate based on the number of errors.

16. (Previously Presented) A transmitting device that transmits a codeword generated based on a first parity-check matrix to a receiving device, and re-transmits a k-th additional parity generated based on a k-th parity-check matrix to the receiving device when receiving a negative acknowledgement for the codeword or a (k-1)-th additional parity, where k is a positive integer, the transmitting device comprising:

an encoding unit that includes

a k-th parity-check matrix transforming unit that transforms a k-th parity-check matrix into an irreducible standard form so that the k-th parity-check matrix includes a k-th check symbol generator matrix;

a (k+1)-th parity-check matrix generating unit that generates a (k+1)-th parity-check matrix including the k-th parity-check matrix transformed in the irreducible standard form;

a (k+1)-th parity-check matrix transforming unit that transforms the (k+1)-th parity-check matrix into the irreducible standard form so that the (k+1)-th parity-check matrix includes the k-th check symbol generator matrix and a (k+1)-th check symbol generator matrix;

a generator matrix generating unit that generates a generator matrix including the k-th check symbol generator matrix and the (k+1)-th check symbol generator matrix; and

an additional parity generating unit that generates the k-th additional parity based on the generator matrix; and

a transmitting unit that transmits the k-th additional parity to the receiving device.

17. (Previously Presented) The transmitting device according to claim 16, wherein

the (k+1)-th parity-check matrix is linearly independent,

number of columns of the k-th parity-check matrix is smaller than number of columns of the (k+1)-th parity-check matrix,

number of rows of the k-th parity-check matrix is smaller than number of rows of the (k+1)-th parity-check matrix, and

a sum of differences between the Shannon limit and N SNRs each of which corresponding to each of N parity-check matrices is minimum, where N is a positive integer.

18. (Previously Presented) The transmitting device according to claim 17, wherein number of rows and columns to be added to the k-th parity-check matrix to generate the (k+1)-th parity-check matrix are determined according to system requirement conditions.

19. (Previously Presented) The transmitting device according to claim 18, wherein a zero matrix of which number of columns is equal to determined number of columns is added to the k-th parity-check matrix to generate the (k+1)-th parity-check matrix.

20. (Previously Presented) The transmitting device according to claim 16, wherein

the negative acknowledgement from the receiving device includes number of errors corrected by the receiving device, and

the transmission device determines a coding rate based on the number of errors.

21. (Canceled)

22. (Canceled)

23. (Currently Amended) The communication device according to claim ~~22~~ 25, wherein the parity-check matrix corresponds to the plurality of coding rates under constraint conditions that "the number of columns of the parity-check matrix at R(L) ~~R(i)~~ is smaller than the number of columns of the parity-check matrix at R(L-1) ~~R(i-1)~~ the re-transmission", "the number of rows of the parity-check matrix at R(L) ~~R(i)~~ is smaller than the number of rows of the parity-check matrix at R(L-1)~~R(i-1)~~" and "a sum of differences between SNRs corresponding to parity-check matrices according to respective coding rates and the Shannon limit is made as small as possible".

24. (Currently Amended) The communication device according to claim ~~22~~ 25, wherein the communications are performed by using either one of a party-check matrix generated based on the Equation (1) and a partial matrix of the corresponding parity-check matrix.

25. (New) A communication device that performs communications of a codeword between a transmitting device and a receiving device using a parity-check matrix generated by varying parity bits in connection with a plurality of coding rates R(L) based on an Equation (1) in a state in which L = 1, 2, 3• • , max-1, max (0<R(1)<R(2) <... <R(max-1) <R(max)=1), when R(max) denotes non-coding, n denotes the number of columns of a check matrix $H_{R(L)}$ and a code length at $R_{(L)}$, k denotes the number of rows of the check matrix $H_{R(L)}$, t denotes the number of additional parity bits, and $A_{R(L-1)}$ denotes a check matrix added for realizing $R_{(L-1)}$,

$$H_{R(L-1)} = \left[\begin{array}{c|c} H_{R(L)} & 0 \\ \hline A_{R(L-1)} & \end{array}\right]$$
$$R(L) = \frac{n-k}{n}, R(L-1) = \frac{n-k}{n+t} \qquad (1)$$